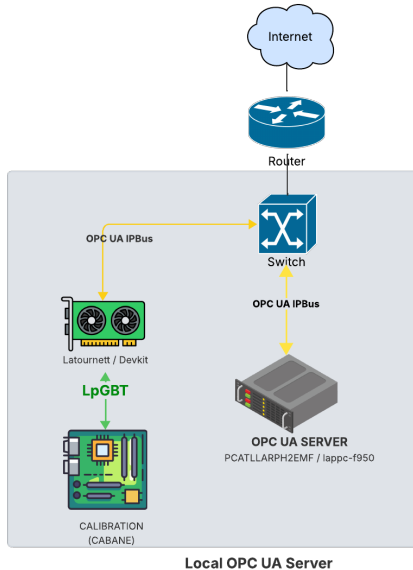


LAPP vs EMF Speed Performance comparison with OPC UA

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November 4, 2025

LAPP/EMF Network Diagram

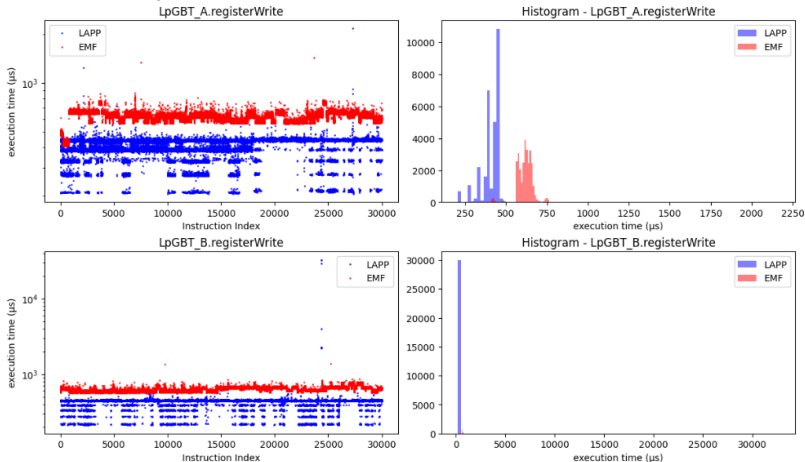


LAPP vs EMF Sequential:

"LpGBT_A(30K) & LpGBT_B(30K) registerWrite()"

[SERIAL] Matching on: instance+method
Labels: LAPP vs EMF
Commons found: 2
- LpGBT_A.registerWrite
- LpGBT_B.registerWrite

Compare SERIAL - LAPP: 25.30 s (sum 25.18 s) vs EMF: 38.21 s (sum 37.31 s)

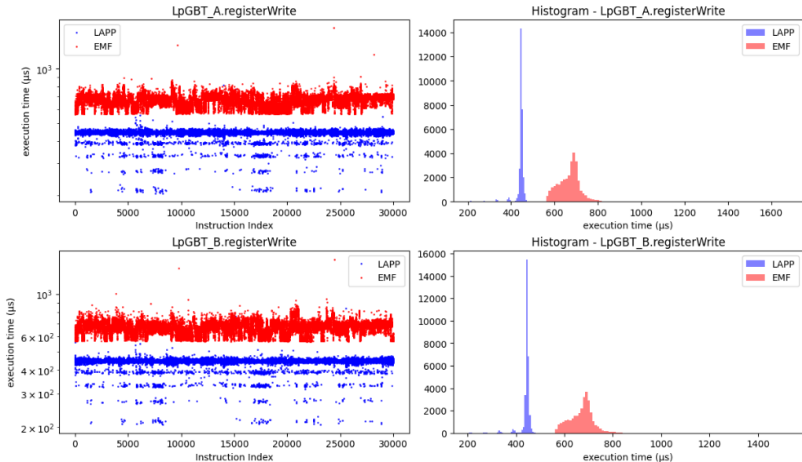


LAPP vs EMF Multithreading:

"LpGBT_A(30K) & LpGBT_B(30K) registerWrite()"

```
[PARALLEL] Matching on: instance+method  
Labels: LAPP vs EMF  
Commons found: 2  
- LpGBT_A.registerWrite  
- LpGBT_B.registerWrite
```

Compare PARALLEL - LAPP: 13.33 s (sum 26.52 s) vs EMF: 20.60 s (sum 40.12 s)



Key takeaways

✓ Overall mean :

→ LAPP

LpGBT_A: ~ 406 $\mu\text{s/op}$

LpGBT_B: ~ 433 $\mu\text{s/op}$

→ EMF

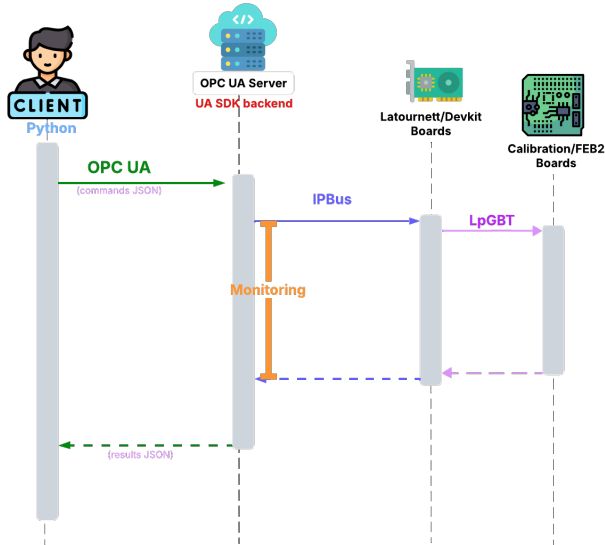
LpGBT_A: ~ 617 $\mu\text{s/op}$

LpGBT_B: ~ 626 $\mu\text{s/op}$

⚡ LAPP is $\sim 1.5\times$ faster (LpGBT_A & LpGBT_B) than EMF.

Thank you!

Appendix 1: System Architecture



Sequence Diagram

Appendix 2: Commands

```
{  
  "serial": {  
    "0": "30000:LpGBT:latournett_emf.CALIBRATION_EMF.LpGBT_A.registerWrite(0x36, 0x80)",  
    "1": "30000:LpGBT:latournett_emf.CALIBRATION_EMF.LpGBT_B.registerWrite(0x36, 0x80)"  
  },  
  "parallel": {  
    "0": "30000:LpGBT:latournett_emf.CALIBRATION_EMF.LpGBT_A.registerWrite(0x36, 0x80)",  
    "1": "30000:LpGBT:latournett_emf.CALIBRATION_EMF.LpGBT_B.registerWrite(0x36, 0x80)"  
  }  
}
```